

1 **Abstract**

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3 An improved cell for a walk-off refractometer is disclosed that permits measurement of the

4 differential refractive index, DRI, between a sample fluid and a reference fluid. In addition, the

5 new cell design permits the measurement of the refractive index, RI, of a fluid relative to the

6 refractive index of the material comprising or surrounding the flow cell. Thus a single instrument

7 may be used to measure separately the RI of a sample fluid and the DRI between a sample fluid

8 and a reference fluid. The new flow cell contains two chambers, typical of a DRI instrument, but

9 an asymmetric internal angle in either the sample or the reference chamber. By the provision of

10 this unique structure, it is an objective of this invention to be able to measure the refractive index

11 of a fluid relative to the refractive index of the material comprising the flow cell or relative to the

12 medium surrounding the flow cell, either of which may be considered a measurement of the RI

13 of the fluid. With the addition of mirror means, it is the further objective of this invention to

14 improve its sensitivity. A further objective of the invention is to measure the asymmetric internal

15 angle of the flow cell using well-characterized reference fluids.

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